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ABSTRACT

In this report, a task force appointed by the National Commission on Libraries and Information Science (NCLIS) to prepare a plan for a National Periodicals program recommends a three level program consisting of: (1) local, state, and regional library systems responsible for meeting a substantial portion of routine needs for periodicals; (2) a comprehensive periodicals collection dedicated for lending and photocopy service to meet the majority of unfulfilled requests from Level I; and (3) back up for the first two levels from existing national libraries and other unique collections. The National Periodicals Center would be organized and developed by the Library of Congress. Grant funds would be sought by NCLIS for a three-year planning and development period, with subsequent financing to come from a combination of federal funds and transaction fees charged for services. Governance and organization of the Center and financial estimates for the program are also discussed, and a bibliography and list of task force members appended. (Author/AWP)

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EFFECTIVE ACCESS TO THE PERIODICAL LITERATURE:

A NATIONAL PROGRAM

Prepared by

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FOREWORD

This report has been prepared as a result of the deliberations by the Task Force on a National Periodicals System appointed in November 1975 by the National Commission on Libraries and Information Science. The work that resulted in this report was carried out during 1976 under the guidance of Mr. Vernon E. Palmour. Task Force members were selected because of their stature, experience and position in the library and information community.

In order to insure even wider participation in the study, tentative findings and recommendations have been presented in news releases, conference reports and staff visits; in addition, invited speakers have participated in Task Force meetings during the 12-month period.

The Task Force is confident that the accomplishment of the recommendations, as set forth in the report, would make a major contribution towards an effective national network of library and information services.

The National Commission on Libraries and Information Science wishes to thank the Task Force members and their organizations for their important contributions in this effort.

Special credit must go to Mr. Palmour, who served NCLIS in a staff capacity for this study. He undertook the needed research and investigation with skill and thoroughness, and his hard work and patience contributed substantially to completion of this study on schedule. Full responsibility for writing the various

drafts as well as the final report rested on his capable shoulders. Mr. Palmour's previous investigations for the Association of Research Libraries and the NCLIS on periodicals access and resource sharing made him especially qualified to undertake this assignment.

I also wish to thank Ruth L. Tighe, Research Associate, NCLIS, for her contributions to the organization of the final report, and Marlene Morrisey, Office of the Register of Copyright, for preparing minutes of the Task Force meetings.

Alphonse F. Trezza
Executive Director
National Commission on Libraries
and Information Science

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GLOSSARY

Access - The ability to identify and obtain a unique item (generally a periodical article) from a standard description. Encompasses bibliographic access and physical access to materials.

Bibliographic Access - The ability to identify a unique item from a standard description of it.

Current Title - A periodical that is currently being published.

Data Base - Files of bibliographic or other information recorded on magnetic tape, disk or core for computer processing.

Deceased Title - A periodical that is no longer published.

Dedicated Collection - A collection established for the single purpose of interlibrary loan or photocopy.

Federal - Synonymous with the United States Government.

Interlibrary Loan - A transaction in which library material is made available by one institution to another for use. This includes the provision of a copy as substitute for loan of the original material.

National - Refers to interests that transcend local, state and regional concerns. The term is also used to refer to organizations whose operations embody or serve these interests.

National Periodicals Center - The center within the U. S., proposed in this report, which would be responsible for acquiring a comprehensive dedicated collection of

periodical titles and for making material from them available to libraries by loan, photocopy, or microform service.

National Periodicals Program - An organized and articulated plan for the coherent development of effective access to the periodical literature in the U. S. to meet the needs of its people. Synonymous with a national periodicals system.

Network - Two or more libraries and/or other organizations engaged in a common pattern of information exchange, through communications, for some functional purpose.

Periodical - A publication constituting one issue in a continuous series under the same title published at regular or irregular intervals, over an indefinite period, individual issues in the series being numbered consecutively or each issue being dated. For purposes of this report newspapers, periodical newsletters and government reports are excluded.

Periodical Title - A unique identification of a single periodical publication containing all the individual issues published.

Serial - Sometimes used in the library literature to be synonymous with a periodical publication, but for purposes of this report serial publications are a broader class including newspapers, periodical newsletters and government reports, and serial monographs.

Telecommunication - The exchange of information by electrical transmission.

Telefacsimile - The electronic transmission of an exact duplicate of a page, a graphic, or a film image.

CHAPTER I

SUMMARY

The National Commission on Libraries and Information Science, sensitive to the growing need for more effective access to the periodicals literature, appointed a Task Force to prepare a plan for a national periodicals program. After the examination of alternatives for improving access to periodicals, the Task Force recommended a three-level program consisting of the following levels:

Level 1 - Local, state and regional library systems responsible for meeting a substantial portion of routine needs for periodicals.

Level 2 - A comprehensive periodicals collection dedicated for lending and photocopy service to meet the majority of unfulfilled requests derived from Level 1. Initially, a single National Periodicals Center would be developed, but experience and demand may warrant more than one.

Level 3 - Existing national libraries and other unique collections to back up the first two levels.

The most significant element not already in place in the recommended plan is the National Periodicals Center. The Library of Congress was recommended as the organization to assume responsibility for developing, managing and operating the Center.

Initially, the collection of the Center would be developed from donations and cooperative agreements with various library organizations. Current subscriptions, which may number as many as 50,000, would begin as soon as funds and space are available, probably in 1978. Services should begin in late 1978 or early in 1979.

Grant funds would be sought by the National Commission on Libraries and Information Science for the early planning and development of the National Periodicals Center. Both transaction fees charged for services and grant funds would be used to finance operations for the first three years. After that period, it is expected that the Center would be financed from a combination of Federal funds and transaction fees charged for services. The Federal portion of operating funds would be requested as part of the Library of Congress budget for fiscal year 1981.

The Library of Congress would also serve as the clearing center for Level 3 requests not filled at the National Periodicals Center. Items would be sought from the Library of Congress and other major research libraries.

Coordination of the three-level program would be the responsibility of the National Commission on Libraries and Information Science, assisted in this role by an advisory group appointed to provide representation from the affected communities--users, libraries, library systems, publishers, secondary services, and others. It is recommended that a subcommittee of the present Task Force on a National Periodicals System be appointed to serve as this advisory group during the early stages of development and

operation of the proposed program.

A second advisory body would be appointed by the Library of Congress to assist it in defining the policies and services of the National Periodicals Center itself.

Rough cost estimates and proposed next steps to the National Periodicals Program are given in the report.

CHAPTER II

INTRODUCTION

Interlibrary Loan

The borrowing of materials by one library from another library, i.e., interlibrary loan, has been the traditional means of increasing patron access to items not available locally. The explosion of publications and other informational materials in recent years, as well as the continuing inflationary spiral in costs have played havoc on libraries in the United States. There is now almost universal recognition that more drastic changes to provide effective library services are needed. Although complete statistics of national interlibrary loan traffic for all libraries are not available, the number of interlibrary loans probably exceeds 10 million annually. Statistics published by the Association of Research Libraries (ARL) show that its 99 member libraries made 2,158,000 interlibrary loans during the year 1974-75, whereas in the same period, these same large university, national, and special research libraries borrowed 477,000 items from other libraries. While interlibrary loan, as viewed by librarians, was intended to be approximately an evenly balanced reciprocal lending and borrowing operation among libraries--achieving a quid pro quo--these statistics indicate that balanced reciprocity is not often achieved.

The present interlibrary loan operations are based, for the most part, upon ad hoc arrangements evolved over the years. In order to increase access to materials and because reciprocity was far from balanced, some groups of libraries have moved in the

last couple of decades to more formal cooperative programs. Several states have funded and established effective statewide interlibrary loan networks. While these cooperative programs have improved access to library materials in a few geographical areas, the nation as a whole lacks a coherent system for the effective unrestrained lending and borrowing of library materials. The problem of uneven library resource development at the local and state level is compounded by the lack of rationalized library development policy at the national level. As a consequence, overlapping roles and responsibilities have resulted in the present uncoordinated, and sometimes confusing programs of federal assistance to libraries.

Periodicals Crisis

Libraries need to provide books. They also need to provide information published in periodicals, journals, magazines, and other publications issued serially. This latter group are here collectively termed "periodicals" and their cost may consume from 30 to 70 percent of a library materials budget. While libraries have been hard hit in both the book and periodicals budgets in the current economic situation, there seems to be a consensus among librarians that the problem with periodicals is quickly reaching a crisis level. With the continued increase in the number of periodical journals published and the even more rapidly increasing subscription prices, the American libraries are acquiring a decreasing proportion of the world's periodical literature output. In order

to avoid major slashing reductions in the number of periodical subscriptions, many libraries have reduced their budgets for books to alarming levels. This is substantiated by findings of the National Center for Education Statistics, U. S. Office of Education, which reported from its 1974-75 survey of college and university libraries that library expenditures for books had increased only 2.8 percent in a two-year period, in contrast to an 8 percent increase in the average book price. Average periodical prices, on the other hand, increased 34 percent in the two-year period and library expenditures for periodicals rose 36 percent. This indicates a marked shift in library fund expenditures from books to periodicals, a trend which cannot continue without injury to library collections and to the book publishing industry as a whole.

The need for an effective national periodicals interlibrary loan system to meet patron needs is considered to be a major requirement by experts in the library community. About half of all interlibrary loans made by academic libraries consist of articles in periodical journals. Action must prevent barriers to access by users, as a result of shrinking library resources, in an era when information plays such an important role in our society. It is necessary to give high priority to a National Periodicals Program because it is one of the key links in a chain of improvements that are needed to provide the nation with the updated communication process to make available the information every citizen requires. And it is a program needed at once due to the severe periodical budgetary situation in libraries, the heavy reliance on periodicals

in the interlibrary loan activity, the lack of adequate state programs, and the lack of balanced reciprocity which could have helped to reduce restraints on this essential interlibrary means of access to information.

Previous Studies

The first major attempt to investigate the academic interlibrary loan activities on a national level across all subject areas was undertaken by the Association of Research Libraries (ARL) in 1970. Through a contract with Westat, Inc., ARL obtained a study which provided basic data on the magnitude, characteristics, and costs of academic interlibrary loans. 1/ It was estimated that in the year 1969-70 academic libraries received about 2.1 million loan requests, of which 48 percent were for periodicals.

Based upon results of the first study, ARL felt that, perhaps, the best solution to reducing the interlibrary loan burden on their members was through improvement of the handling of periodical loans. A second ARL study, again conducted by Westat, investigated several alternatives for such an improvement. 2/ Three basic structures

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1/ Palmour, Vernon E., Bryant, Edward C., Caldwell, Nancy W., and Gray, Lucy M., A Study of the Characteristics, Costs and Magnitude of Interlibrary Loans in Academic Libraries, Westport, Connecticut: Greenwood Publishing Company, 1972.

2/ Palmour, Vernon E., Bellassai, Marcia C., and Gray, Lucy M., Access to Periodical Resources: A National Plan, Washington, D. C.: Association of Research Libraries, 1974.

were developed and evaluated for a national periodicals system:

1. A single new facility with a comprehensive collection, patterned after the British model;
2. A new multi-location national system based on a number of satellite resource centers with dedicated collections of the most heavily-used titles, and a single new national center serving as a major resource in the system; and
3. A regional resource network based on designated existing library collections.

Based on the analysis of cost and other factors, Westat recommended a single national center--i.e., the first alternative. This study was finished in late 1973; a recent article by Palmour summarizes the results. 3/

During the ARL study on periodicals, Westat was awarded a contract with the National Commission on Libraries and Information Science (NCLIS) to look at the role of resource and bibliographic centers in a national network for all types of library materials. 4/ A hierarchical network was recommended

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3/ Palmour, Vernon, E., "Alternatives for Increasing Access to Scientific Journals," IEEE Transactions on Professional Communication, Vol. PC-18, No. 3, September 1975. pp. 210-215.

4/ Palmour, Vernon E., Bellassai, Marcia C., and Roderer, Nancy K., Resources and Bibliographic Support for a Nationwide Library Program, Washington, D. C.: National Commission on Libraries and Information Science, 1974.

with state, zonal and regional resources, and national components. A single comprehensive periodicals center was recommended for the national level.

As part of the review process by NCLIS on this study, a two-day conference was held in April 1975 in Washington, D. C. Representatives from the library community were invited to participate in helping the NCLIS decide on next steps to take in light of the study recommendations. There was group consensus on the need for a national periodicals system, and that the NCLIS should take action to bring about such a system. The creation of the Task Force to prepare a plan for a national periodicals system is the result of that judgment.

Task Force on a National Periodicals System

The NCLIS appointed a Task Force, representing various segments of the library and information community, to prepare a specific plan for a national periodicals system. Task Force members and the groups represented are shown in the Appendix. Vernon E. Palmour was retained as a consultant to the NCLIS to direct the Task Force.

The Task Force started its work in January 1976. Through a series of working meetings, recommendations were developed on the design of a national program for improving access to periodicals. The findings and recommendations of the Task Force are presented in the following chapters.

CHAPTER III

PLANNING A NATIONAL PERIODICALS PROGRAM

Periodical Literature

The periodical literature is made up of a variety of materials. It includes professional and scholarly journals and magazines, trade journals, and a number of other periodical publications of professional and scholarly societies. Periodical literature, as used in this report, is a subset of the broader class of serial publications (see glossary). Newspapers, conference proceedings, and other serial publications such as government bulletins, newsletters, etc., are excluded from the periodical literature as defined here.

Because of the difficulty in precisely defining periodicals, any estimate of the number of individual titles in the universe of all periodicals is at best only rough. Periodical literature includes titles that are currently published and titles that are no longer currently published, referred to as deceased titles. One of the better sources of information about the number of currently-published periodicals is the British Library Lending Division (BLLD). The BLLD has the most comprehensive collection of periodicals dedicated to interlibrary loan in the world. As of September 1976, BLLD received 47,500 current serial titles. Their definition of serials corresponds roughly to periodicals as used in this report. Another 75,000 periodical titles that have ceased publication are also available at BLLD. It is the

opinion of some American librarians that a U. S. system will require more periodical titles than the British system.

The most complete description of the role of periodical journals in scientific and technical communication is given by King in a recent study for the National Science Foundation. 5/ The definition of scientific and technical fields included social and life sciences; humanities and business professions represent the largest groups omitted from the study. King estimates the total resource expenditures going into the preparation, publishing, distribution, and use of all forms of scientific and technical information in the U. S. totaled $8.5 billion for 1974. According to King's figures, about 63 percent of the total scientific and technical communication resources expended was accounted for by scientific and technical journals. Expenditures for preparing articles, publishing, distributing, and using journal articles were estimated at $1.3 billion in 1960 and $5.6 billion in 1974. This figure is expected to reach $9.9 billion in 1980. Libraries and secondary services--abstracting, indexing, and bibliographic searching--account for about 25 percent of the total expenditures.

5/ King, D. W., McDonald, D. D., Roderer, N. K., and Wood, B. L., Statistical Indicators of Scientific and Technical Communication, 1960-1980, Vol. 1, Rockville, Maryland: King Research, Inc., 1976.

The number of scientific and technical journals, including scholarly and trade journals, published in the U. S. in 1974 was estimated by King at 8,000. The number of journals published in the U. S. has increased at an annual rate of about 2 percent; the growth rate for journal articles is slightly higher, about 2.6 annually. By 1980, the number of worthwhile periodicals will be 60,000 based on the BLLD experience and a 4 percent growth per year in new titles. 6/

Interlibrary Loan of Periodicals

According to 1970 figures, about 48 percent of all interlibrary loan requests received by academic libraries are for periodicals. 7/ The bulk of satisfied requests for periodicals, 83 percent, were in the form of photocopies in lieu of loan of original materials. Periodical items requested from academic libraries, in terms of broad subject categories, were as follows:

56% Science and Technology

15% Humanities

13% Social Sciences

16% Other

Eighty-four percent of the requests were for English-language journals. The study showed that about 80 percent of all the loan

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6/ Barr, D. R., Trends in Book Production and Prices, London: National Central Library, January 1972.

7/ Palmour, Vernon, E., Bellassai, Marcia C., and Gray, Lucy M., Access to Periodical Resources: A National Plan, Washington, D. C.: Association of Research Libraries, 1974.

requests were satisfied. Over half of the unfilled requests were for items not owned by the library receiving the requests.

Interlibrary studies show that requests are concentrated over relatively few titles. In a study on the availability of serials and conference reports in the U. S., Wood found that 12,282 individual titles were requested in his sample of 70,686 inter-library loan requests. 8/ The study showed that fifty percent of all requests could be satisfied by only 850 titles and about 2,700 titles would satisfy 75 percent of all requests. Over 92 percent of all requests were for about 6,800 titles. A more recent study conducted by the BLLD also showed the heavy concentration of demand for a relatively small number of titles. 9/ A sample of 61,333 total requests produced requests for 14,967 individual journal titles. Fifty percent of the requests were for 1,400 titles; 70 percent of the requests were for 3,300 titles; and 90 percent of all requests could be satisfied by 8,300 individual journal titles. Demand for currently-published titles accounted for about 75 percent of the total requests in the BLLD sample.

8/ Wood, James L., A Review of the Availability of Primary Scientific and Technical Documents within the United States, Vols I-III, Columbus, Ohio: Chemical Abstracts Service, 1969.

9/ Line, Maurice B., and Wood, D. N., "The Effect of a Large-Scale Photocopying Service on Journal Sales." Journal of Documentation, Vol. 31, No. 4, December 1975, pp.234-245.

The total number of interlibrary loan requests for periodicals for all types of libraries is in the millions. Palmour estimated, from his 1970 data, a total of 1,019,000 loan requests for periodicals received by academic libraries in 1969-70. 10/ Based on five years of historical data, he projected a total of 1,537,000 requests would be received by academic libraries in 1974-75. This forecast has been surpassed by actual experience. The Association of Research Libraries reported in their annual statistics for 1974-75 1,289,000 interlibrary loan photocopies. If the 1970 estimates for fill rate (80 percent) and percent of loans filled by photocopy (83 percent) remain valid, the ARL members would have received about 1,941,000 total periodical requests in order to fill the reported number by photocopy. This implies that the total loan requests received by all academic libraries exceeded 2 million in 1974-75. Such a level of loans indicates that the exponential growth of interlibrary loans observed in the late 1960's has continued through 1974-75. The growth rate for loan requests received by academic libraries appears to be about 19 percent compounded annually.

Economic and Technological Trends

A national periodicals program must be flexible enough to allow for change, such as the introduction of new technologies which could provide efficient and economical services to the users. Both new technology and adversary economic trends must be

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10/ Palmour, Vernon E., Op. Cit.

accomodated. There is one very important question looming on the horizon--what will happen to primary publishing over the next few years? A number of noticeable economic trends are emerging which are adversary to traditional publishing. Rising cost of labor and materials (e.g., paper, composition, editing, proofing, printing, and postage), declines in sales, publisher concerns about effective copyright protection and the overall decline in government and private sector-based direct and indirect subsidies, all effect the relationships between authors, editors, referees, distributors, individual and institutional buyers, document delivery services and sponsoring or subsidizing institutions. New techniques of "packaging," marketing and distribution are being explored as publishers seek to balance the declining expense/revenue ratios forced upon them by these economic trends. The effort to improve service by reducing time lags in the transfer of new information from producer to consumer also requires reallocation of economic resources.

A number of technological trends are interacting with the economic trends to further effect change and to influence the future of primary publishing. The most evident of these trends is in the growth of automation, especially computerization, and of networks. Initially automation, primarily mechanization, was a boon to the publishing industry. However, as mechanization yields to the electronic advances of computerization, newer alternatives to the full printed text are beginning to appear, at least in the sphere of science and technology publishing. These developments include the "synoptic journal" (full article text

delivered on demand only), "electronic mailbox" or personalized selective dissemination of information, teleconferencing and telecommuting, and the scientific "shoe box" file concept, whereby a scientist records his research findings directly into computer store to be synthesized and assimilated by information specialists for "publication" on demand.

As computer technology becomes cheaper and more widely deployed (through telecommunications), these developments will have an impact on primary publishing, and by extension on plans for a national periodicals system. In addition, developments in microminiaturization, as well as the spread of networks, cable TV, and cheap laser communications through fiber optics and satellite relay, will have an impact. As a result there will be a vast increase in the numbers of periodicals that will be available in computer-readable form accessible via telecommunication from remote terminals. The effect of these developments needs to be explored further, and the Task Force recommends that the NCLIS sponsor the necessary research to insure that the future development of a national periodicals program is responsive to such trends.

Assumptions

The Task Force adopted the following broad assumptions as guidelines for planning a national periodicals program:

1. The nation's information components will continue to function as a pluralistic community--publishers, abstracting and indexing services, libraries, information centers, data base services, for-profit, not-for-profit and governmental agencies.

2. Costs of producing and distributing information will continue to rise.

3. While the long-term trend is towards electronic alternatives for the preparation, storage and distribution of information, the use of printed materials will continue as the primary format in the immediate future.

4. Information networks and their interconnections will continue to expand for the sharing of library/information resources.

5. Interlibrary loan will continue to grow and become an increasingly serious problem under the current "system."

Goals of a National Periodicals System

The overall goal of a national periodicals system must be in line with the ideal adopted by the Commission in its National Program Document:

> "To eventually provide every individual in the United States with equal opportunity of access to that part of the total information resource which will satisfy the individual's educational, working, cultural and leisure-time needs and interests regardless of the individual's location, social or physical condition or level of intellectual achievement." 11/

11/ National Commission on Libraries and Information Science, Toward a National Program for Library and Information Services: Goals for Action, Washington, D. C., 1975.

With this broad goal in mind, the following more specific goals were identified for shaping a national plan for improved access to periodical resources:

1. Improved bibliographic and physical access to periodical materials for all current and potential users.
2. Improved delivery of periodical materials.
3. Reduced burden on large net lenders of periodical materials.
4. More effective use of individual library funds in the provision of periodical materials.
5. Effective awareness and promotion to insure wide knowledge of the availability of the system and its services. These activities must include training and educational programs for librarians and users.
6. Improved access to the contents of periodicals, which implies seeking means for improving each step in the preparation, publishing, abstracting and indexing, bibliographic identification and control, and distribution of the materials, with recognition of the various components in the private and public sectors.

The accomplishments of these goals will require a flexible system capable of adjusting its scope, configuration, and operating methodology to accommodate future demand, and developing technology and operational experience.

Services and Products

What services and products are required of a national periodicals program to meet the goals? The Task Force has agreed that the primary immediate need is improved document delivery. Consequently, the main service of a national periodicals program will be dependable delivery of loan or photocopies of journal articles. This service will be based on the following design features:

1. The aggregate collection of the system will be comprehensive in subject coverage to include all worthwhile journals.
2. Heavily-used, moderately-used, and little-used materials will be available.
3. Value of content rather than language will be the criterion for inclusion of a title.
4. Initially, materials acquired for collection(s) dedicated to lending and photocopy will be built forward from a specified start date and back files developed later.
5. Initially, most requests for materials will arrive via mail and teletype, with photocopies and loans dispatched by mail. In the future, some requests can be expected to be sent via a computer-based communications system. The cost of telefacsimile service should also become more favorable in the future.

The proposed national periodicals system will operate under the copyright law. An organized system, such as that proposed by the

Task Force, with specified lending centers, should make the problem of accounting, for copyright purposes, much more manageable.

Criteria for Evaluating Alternative Structures

In order to compare and evaluate alternative structures for a national periodicals program, a set of criteria is needed. If each of several alternative structures satisfies the goals and objectives, then the "best" alternative should be chosen on the basis of its "score" in meeting the criteria. This approach is conceptionally sound, but difficult practically because of the inability to objectively assign a score (rating) to each criterion for the alternatives. Criteria in the following areas were considered by the Task Force:

1. Acceptability to Community. The acceptance by all types of libraries of the proposed structure for a national periodicals system is most important for its success. "Community" includes librarians, users, publishers, and other information components in the public and private sectors.
2. Legal Basis. The legal structure of the system must be capable of serving all types of library organizations. Possible limitations on payment of funds, contracting, and other legal arrangements must be assessed for each proposed alternative structure.
3. Governance. What kind of organization will a national periodicals system require? Different alternatives will call for different organizational

approaches. At the top, an advisory committee might be appointed by the NCLIS to set general policy. Such a committee could operate as a Board of Directors.

4. Performance. Performance has several dimensions, but speed of delivery and success in filling requests are the two most important. Speed of delivery might well be listed as a criterion. It encompasses location of facilities and internal operational capabilities.
5. Start-up Potential. Can a demonstration of reliable and fast service be set up quickly? The right kind of action is needed soon. If a structure cannot make an impact on the problems for several years, it may well be overtaken by events and fail.
6. Funding Potential. The adopted structure should possess attributes that assist in financing the system. Incentives should encourage funding at several levels, e.g., Federal funds might require matching state or regional funds. Federal funding should provide the incentive for local development. Another aspect to consider is the overall level of funds required, as well as the size of investment and operating funds during the first several years.
7. Costs. Some of the comments under funding potential apply here also. Cost must be viewed in relation to performance. It is common in cost-effectiveness

comparisons to fix either cost or performance for all alternatives and choose the alternative that is best on the other factor--highest performance at a fixed cost level, or minimum cost at a fixed level of performance.

8. Overall Impact. Improved allocation of resources by local libraries is important.
9. Growth Flexibility. The ability of the system to absorb growth will be critical to its future success.

CHAPTER IV

ALTERNATIVE APPROACHES

The design of a national periodicals program requires answers to the following general questions:

1. What kind of national periodical system is needed to meet future demands?
2. What pieces or components of such a system exist today?
3. How can the transition best be made from the existing pieces to the desired future system?

In addressing these questions, two recommendations quickly emerged: (1) the majority of routine needs for periodical literature should be met by the existing local, state and regional library systems, and (2) the strong periodical collections of the national and major research libraries should also be part of a national periodicals system.

Some general statements on the kind of national system needed were given in the previous chapter in the discussion of services and products required to meet the goals of the program. The following section will briefly describe the existing pattern of document delivery of periodical materials in the United States.

Existing Components

In the broadest sense, the component members of a national periodicals program include those who generate, produce, and package the periodical literature (authors and publishers), those who provide intellectual access to it (abstracting and indexing services and search services), those who provide physical access (libraries and other information providers), those who use the literature, and those who provide the financial support without which there can be no national program. The primary focus of this report is on physical access, consequently the emphasis is on libraries and other information providers.

In an attempt to cope with the growing demand for materials and the limited budgets to acquire such materials, libraries have engaged in a multitude of cooperative activities. Many of these arrangements include the sharing of periodical resources among libraries. The majority of cooperative activities are local in nature, with the participants being co-located in the same community or geographical area within a single state. States, in some cases, have taken the lead and developed statewide library systems. Examples of three successful state-funded systems that involve document delivery of periodical materials are the interlibrary loan systems of Illinois, Minnesota, and New York.

The Illinois Library and Information Network (ILLINET) is a statewide library network composed of local public, academic,

special, and school libraries, eighteen library systems, four research and reference centers, and two special resource centers of last resort; the Illinois State Library serves as one of the four research and reference centers. Loan requests flow in a hierarchical pattern from local libraries to the back-up libraries. As an indication of traffic in the system, the University of Illinois, one of the six back-up libraries, received about 18,000 periodical requests from the state system in 1975-76. About 14,000 requests were satisfied.

MINITEX is a statewide network providing a variety of services to libraries in Minnesota as well as current contract services to North Dakota, Montana, and Wisconsin. All types of libraries can and do participate; they numbered about 150 in 1976. Requests are channeled to the University of Minnesota through a variety of paths, depending upon the type of library from which the request originates. During the year 1975-76 105,000 requests for periodicals were received within the system as a whole. The fill rate was 96 percent leaving only 4,000 unfilled requests for periodicals. A key to the high fill rate and successful operation of MINITEX is the Minnesota Union List of Serials (MULS) which contains about 70,000 titles. MULS contains holdings of 120 academic, public, government, medical, seminary and special libraries in over 200 locations.

NYSILL, the major statewide program of New York's Reference and Research Library Resources Program (3R's), has provided access

to research library resources in the state since 1967. The NYSILL network includes 12 back-up referral libraries, with the New York State Library serving as the switching center, as the nucleus. A dataphone, teletype, and computer communications network link NYSILL to libraries across the state. Access from the local level to the NYSILL network is made primarily through authorized NYSILL transmission sites, the majority of which are located at public library systems' headquarters or at bibliographic centers of Reference and Research Library Resources Systems. Bibliographic centers coordinate requests from academic and special libraries. Interlibrary loan requests in New York proceed in an hierarchical pattern from the regional, to the state, to the network level. In 1974-75 NYSILL volume totaled 176,000 requests. About 37 percent, or 65,000 of the requests were for periodical materials. The fill rate for periodicals requests was 78 percent for the network (State Library and referral centers). This implies that about 51,000 requests for periodicals were satisfied and 14,000 requests went unfilled.

Beyond the state-level systems, a number of multi-state regional library networks have formed, e.g., the New England Library Information Network (NELINET), Southeastern Library Network (SOLINET), Midwestern Regional Library Network (MIDLNET), Bibliographic Center for Research (BCR), AMIGOS Bibliographic Council, and Pacific Northwest Bibliographic Center (PNBC). The regional networks are at various stages of development, but for the most part,

they have concentrated primarily on the provision of shared cataloging through their contracts with the Ohio College Library Center (OCLC). While the regional sharing of library materials through interlibrary loan is a service that most of the regional systems propose, progress has not kept pace with that of the computerized cataloging service. This is understandable because of the need for regional bibliographic data bases showing locations and holdings of periodicals as predecessor to efficient regional interlibrary loan systems. The present interlibrary loan activities, for the most part, do not go through the regional centers.

The New England Serials Service (NESS) is a pilot project initiated in March 1976 by the New England Library Board, the interstate library compact for the region. NESS acts as an agent for serials interlibrary loan requests for any and all types of libraries and organizations. NESS procures article reprints from commercial and library interlibrary loan services outside the region and from cooperating libraries in New England. Used as a primary source by many special and government libraries, and as the regional endpoint in a hierarchical network by most other libraries, NESS has so far experienced a high fulfillment rate, over 80 percent. During the pilot period small fees recover partial service costs, with the New England Library Board funding the balance.

A number of services at the national level offer access to specialized periodical materials. The largest and most developed system is the Regional Medical Library Program (RMLP) of the National Library of Medicine. The system is a hierarchical network with four service levels: the basic level consists of the collections in community hospitals, colleges, and junior colleges with meaningful health science education and training programs, and other health-related schools; the second level is composed of resource or participating libraries, principally in medical schools, which provide first recourse to a particular group of local libraries; level 3 consists of the 11 Regional Medical Libraries (RML); and the National Library of Medicine is the fourth level. An estimated 750,000 medical interlibrary loans were paid for through the RMLP last year; total medical interlibrary loans were estimated at 2.5 million. A high percentage of the loans are for periodical materials.

The National Agricultural Library (NAL) coordinates the United States Department of Agriculture (USDA) Regional Document Delivery System. In this system USDA personnel in 20 participating states send their document requests to the major land-grant university library of that state. Requests not filled at the state land-grant university library are sent to the regional coordinating library. NAL serves as the back-up resource to the regions. In 1975, 27,000 requests were received and 19,000 of them were filled by the system.

A membership organization which provides access to periodicals to its member libraries is the Center for Research Libraries (CRL), Chicago. CRL was founded in 1949 as an independent, not-for-profit, tax exempt corporation to provide a savings to members by the collective purchase and storage of infrequently-used materials. Membership is now 166 institutions. This includes 104 large university, public,and state libraries and library cooperative groups plus 62 smaller university, college, public, government,and industrial libraries.

Excluding government documents and newspapers, the CRL periodical collection consists of about 36,000 titles. Of these, 14,000 are periodical titles currently received. About 500,000 volumes of periodical back files are held. CRL received approximately 6,000 interlibrary loan requests during the year 1975-76; 80 percent, or about 5,000, were filled. In addition to loan of their own materials to members, CRL provides access to the British Library Lending Division. In 1975-76 this service amounted to about 17,000 requests for articles from BLLD.

The Universal Serials and Book Exchange, Inc. (USBE) also offers periodicals to member libraries. The USBE is a non-profit independent, self-supporting library service organization which operates a clearinghouse for the receipt, organization and redistribution of surplus and duplicate publications, largely periodicals and serials but also including books, documents and other library materials. Membership consists of about 1,600 libraries of all types.

About four million individual periodical issues, representing 40,000 titles, are presently in the inventory. USBE's controlled intake numbers about a million and a quarter issues per year. In 1976 USBE distributed 365,000 publications in answer to 146,000 requests. About 95 percent of the distributed publications were periodicals. Requests for single periodical issues are filled at a fee of $3.25 each. Photocopy service of single articles is not provided.

There exist a large number of organizations that provide delivery of periodical materials. Two of the better known commercial firms are Institute for Scientific Information (ISI) and University Microfilms International. ISI provides tear sheet and photocopy service to about 5,000 periodical titles covered in their Current Contents publication. Fees for individual articles are $3.00 - $4.00. University Microfilms offers article reprint service for about 5,000 magazines and journals. A reprints catalog is available showing the available titles. The price of a single article is $6.00. Both ISI and University Microfilms pay royalties to publishers for permission to copy their materials.

Other organizations providing access to periodicals include information brokerage firms, libraries, and cooperative library groups. Some of the information firms offer services based on arrangements with libraries for the use of materials. Two well-established lending services in the library field are those of the Associated Colleges of the Midwest (ACM) Periodicals Bank and Linda Hall Library.

At the national level are a number of large research libraries that function as de facto national collections. The Library of Congress, which probably holds more periodical titles than any other single library, serves as a back-up resource to the national collections as well as the country as a whole. The Library of Congress provides a photocopy service for periodical materials.

There are other related services that, while they do not provide physical delivery of periodical material, do play an important role in bibliographic access. For example, the National Federation of Abstracting and Indexing Services (NFAIS) members have provided through their publications about 20 million citations to articles in journals since 1957. Aware that users of their services often find it difficult to acquire the cited items, the Federation is considering means to provide access to the original documents which are only available from membership libraries. On-line computer searching of these and other bibliographic data bases is expanding rapidly through organizations such as the System Development Corporation (SDC) and Lockheed.

Since 1974, SDC has provided document-ordering capability to its users as part of its international on-line retrieval service. Users of the service, after identifying relevant citations, can enter orders at the same terminal for hard-copy or microform copies of the full text of the relevant articles or reports. The orders for copies are immediately made available electronically to organizations such as the National Technical Information Service,

Institute for Scientific Information, Congressional Information Service, and University Microfilms International. These organizations then fill the orders and bill the requesters.

The National Technical Information Service (NTIS) recently announced plans for access service to periodicals to commence in early 1977. At first, orders for journal articles will only be accepted from organizations having NTIS deposit accounts and the capability of making Telex requests. NTIS will use their existing communications and accounting systems to route the requests to designated fulfillment centers, bill the requesters and make payments to the fulfillment centers and publishers whose articles are photocopied. Plans do not include acquisition and storage of journals by NTIS. A list of journals for which access is provided, will be published. At this time, NTIS is estimating a single price of about $6.00 per article provided.

Alternatives

The Task Force began the consideration of alternative approaches to a national periodicals program by investigating ways the existing components might be coordinated into an effective system. Starting with the two premises mentioned earlier, (1) that the majority of routine needs for periodical literature should be met by the existing local, state and regional library systems, and (2) that the strong periodical collections of the national and major research libraries should be part of the system, the discussion naturally led to hierarchical designs.

A number of alternative structures were conceptualized and reviewed. Alternatives considered ran the gamut from a comprehensive union catalog that would identify libraries who agree to loan specific titles to hierarchical systems containing several new national centers with dedicated comprehensive collections.

The development of a national serial bibliographic data base for use in identifying periodical titles and lending libraries was an early alternative considered. Data base development is already underway in the CONSER (Conversion of Serials) program being managed by the Council on Library Resources until a projected date of November 1977, at which time the Library of Congress is scheduled to assume management. 12/ CONSER I the current effort, is using the OCLC on-line facility to build and maintain the serials data base. While the CONSER program will be an integral part of any future national periodicals program, the Task Force agreed that a bibliographic system alone does not solve the problem of access to periodicals. The proper identification and location of a desired periodical title is the first step in securing it, but often times that does not insure physical availability of the requested material. A national system must have the capacity to provide effective document delivery.

Several alternatives which were studied assigned the responsibility for provision of service on the basis of expected level of use of individual titles. As mentioned in Chapter III, the bulk of

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12/ Avram, Henriette D., and Anable, Richard, "The Next Generation of CONSER," American Libraries, January 1977, pp. 23-26.

interlibrary loan requests are concentrated on a relatively small number of titles. For planning purposes, the Task Force agreed that 50,000 currently-published periodical titles would be necessary for a national system. It was further assumed that about 5,000 of those current titles would be core agricultural and medical journals that would be held by the National Agricultural Library and the National Library of Medicine. Consequently, about 45,000 current titles should be available in the remaining part of the system.

Currently-published titles account for approximately 75 percent of the total periodical requests received by the British Library Lending Division (BLLD). Based on U.S. interlibrary loan studies and the BLLD experience, the following distribution of demand in terms of the number of titles was postulated:

2,000	Titles will satisfy approximately 50 percent of the expected total annual demand for currently-published titles.
10,000	Titles will satisfy approximately 90 percent of the expected total annual demand for current titles.
45,000	Titles will satisfy almost all demand for current titles.

This distribution assumes all back files of the titles.

Furthermore, the following definitions have been adopted:

Heavily-Used Titles	-	The 2,000 most frequently-used titles required to meet about 50 percent of annual demand for currently-published titles.
Moderately-Used Titles	-	The next 8,000 titles required to meet the next 40 percent of demand.
Little-Used Titles	-	The 35,000 remaining titles required to meet most of the last 10 percent of demand for current titles.

The number of deceased titles that are required to meet roughly 25 percent of the total demand is quite large. The BLLD has about 75,000 deceased titles in addition to 47,500 current periodical titles. While the actual number of deceased titles required in a U.S. periodicals system is unknown, their importance should not be minimized.

Using the definitions above, an alternative design was constructed as a three-level system. A number of small dedicated collections of the 2,000 heavily-used titles would be the responsibility of the states. Realizing that not every state would have need of such a center, 10 to 20 centers were specified with some centers serving a cluster of states. At a second level, four national centers with dedicated collections would handle demand

for the 8,000 moderately-used titles. These centers would be developed from existing collections such as the Center for Research Libraries, the Universal Serials and Book Exchange, and designated research collections. The third level of this system would be responsible for the remaining 35,000 current titles and deceased titles. A national bibliographic data base would be used to identify existing national and unique research collections that could satisfy the requests. The CONSER data base in a future configuration would meet this need.

Another alternative approach was similar, but would require only two levels. The small dedicated collections of heavily-used titles would again be the states' responsibility. For the remaining titles, a comprehensive national lending library would be developed.

Several other variations of these alternatives were reviewed. In light of the present interlibrary loan patterns and the defined evaluation criteria, the Task Force concluded that a three-level system would be best suited to meet the anticipated future needs for periodical materials. The Task Force then began deliberations to:

1. Consider ways to improve local, state and regional capacities to meet a substantial portion of routine needs for periodical literature. (Level 1)
2. Establish the best course of action to create, initially, a major comprehensive periodical collection with the sole purpose of meeting a broad range of national needs. (Level 2)

3. Describe appropriate ways to assure a continuing capacity to tap unique resources of national and other major research libraries. (Level 3)

The specifications for the system outlined above will include a number of required operating and performance characteristics, such as:

1. The flexibility to adjust the scope, configuration, and access mechanisms of each of the three levels as experience and future demand indicate;
2. An operating methodology that will permit effective use of existing and anticipated future computer, communications, and photographic technology; and
3. The ability to monitor performance of the system as a whole as well as the performance of the individual components.

CHAPTER V

PROPOSED NATIONAL PROGRAM

Once agreement was reached that a three-level program was best suited to meet the future needs for periodical materials, the general framework of the program was then defined as consisting of the following three levels:

Level 1 - Local, state, and regional library systems responsible for meeting a substantial portion of routine needs for periodicals.

Level 2 - A comprehensive periodicals collection dedicated for lending and photocopying service to meet the majority of unfilled requests derived from Level 1. Initially, a single center would be developed, but experience and demand may warrant more than one.

Level 3 - Existing national libraries and other unique collections to back up the first two levels.

Local, State, and Regional Systems

A brief description of the present interlibrary loan of periodicals, with examples of the many components, was given in the previous chapter. Level 1 is the primary service level in the present system and should continue as such. In terms of a long-term goal, something like 80 percent of all interlibrary loan requests for periodicals should be able to be met at this level.

The program proposes no plans for new development that might be required as part of the national program. The objective of the proposed national program is to provide back up. First level local, state, and regional systems will be left entirely in the hands of the appropriate local authorities and will provide access to Levels 2 and 3. Activities at the national level would have to be compatible with existing components and would encourage continued strong developments at the local, state, and regional level.

Comprehensive Periodicals Collection

Level 2 is really the entry into the "national" level. The plan calls for a single comprehensive periodicals collection to meet national needs. There is no sure means of predicting how many dedicated centers will be necessary to meet future needs. Thus the plan calls for beginning with a single comprehensive center, hereafter referred to as the National Periodicals Center, while acknowledging that one may not suffice.

To accommodate the great variation in library resource development in the states, the National Periodicals Center will attempt to be comprehensive in coverage except for the highly specialized agricultural and medical journals available through the National Agricultural Library and the Regional Medical Library Program (RMLP) of the National Library of Medicine. Comprehensiveness could be defined in several ways, e.g.:

1. Comprehensive in currently-published titles, or
2. Comprehensive in current and deceased titles to the degree feasible.

It is recommended that the Center concentrate on titles currently published and back files of current titles, and rely on the back-up libraries at Level 3 for requests for items from deceased titles. If requests are received at Level 3 for articles from deceased titles that cannot be located in the U. S., then the system should arrange to provide them through agreements with BLLD and other international centers.

The need for a comprehensive center with a full range of periodicals was based on the following considerations:

1. A dedicated collection will guarantee future availability of titles. This has become an increasingly serious problem as major research libraries have reduced periodicals subscriptions. There is concern that the same title unknowingly may be dropped by all of the U. S. libraries holding the title.
2. A dedicated collection and facility will reduce response time from patron request to patron receipt of materials from that consumed in the present interlibrary loan operation.
3. The comprehensive Center should provide cost-effective service at a future cost savings, when compared to the present inefficient and costly interlibrary loan system.

While the recommended National Periodicals Center may appear to be quite similar to the British system built around the BLLD, the proposed U. S. system is quite different. Interlibrary loan in

the United Kingdom is more centralized with the BLLD handling a large percent of all loans nationwide. The proposed U. S. system will instead place the emphasis for satisfying the bulk of loans on the local, state, and regional level. Only about 20 percent of the U. S. interlibrary loan traffic is expected to be directed to the National Center. A small proportion of these requests will be sent on from the Center to the back-up libraries at Level 3.

Existing Back-up Collections

The third level will consist of existing strong periodicals collections with unique strengths in special fields. Activity at the third level will be coordinated through the Library of Congress (LC). Requests that are not filled at the comprehensive Center will be sent to the LC electronically--probably teletype in the beginning, shifting to computer communication later. LC will search its own holdings and those of other major research libraries to find locations for forwarding the requests. Assuming that CONSER II development incorporates the locations and holdings records, that data base would be used in the future. Examples of other collections to be considered as back-up libraries are the National Library of Medicine, National Agricultural Library, the Linda Hall Library, and strong research collections in universities and industry. For requested items not available in the U. S., arrangements will be made by the LC to send the requests on to international lending centers.

System Characteristics

The proposed system design is a hierarchical structure although not pyramidal in form. It is best described as having an hourglass form as depicted in Figure 1. The primary purpose of Figure 1 is to suggest the usual flow of interlibrary loan requests in the system. Initially, all requests received at the National Periodicals Center will have come from libraries and library systems, with requests not accepted directly from users. Policies on access from Level 1 to Level 2 will have to be developed. Libraries with large periodical collections or strong specialized collections should have direct access to the Center, in cases where routing their requests through state and regional systems would only add time. Additional discussion of access points and routing of requests is contained in a later section on protocols and fees.

While the initial design is characterized as an hourglass hierarchy, the future form could well change in the middle level. Two factors that could bring about a change are:

1. Increase in demand to a level where a single center can no longer effectively handle the load. In this situation, a number of regional satellite centers could be established to handle requests for heavily-used items.
2. Delivery time of requested materials becomes unacceptable through further deterioration of the U. S. Postal Service.

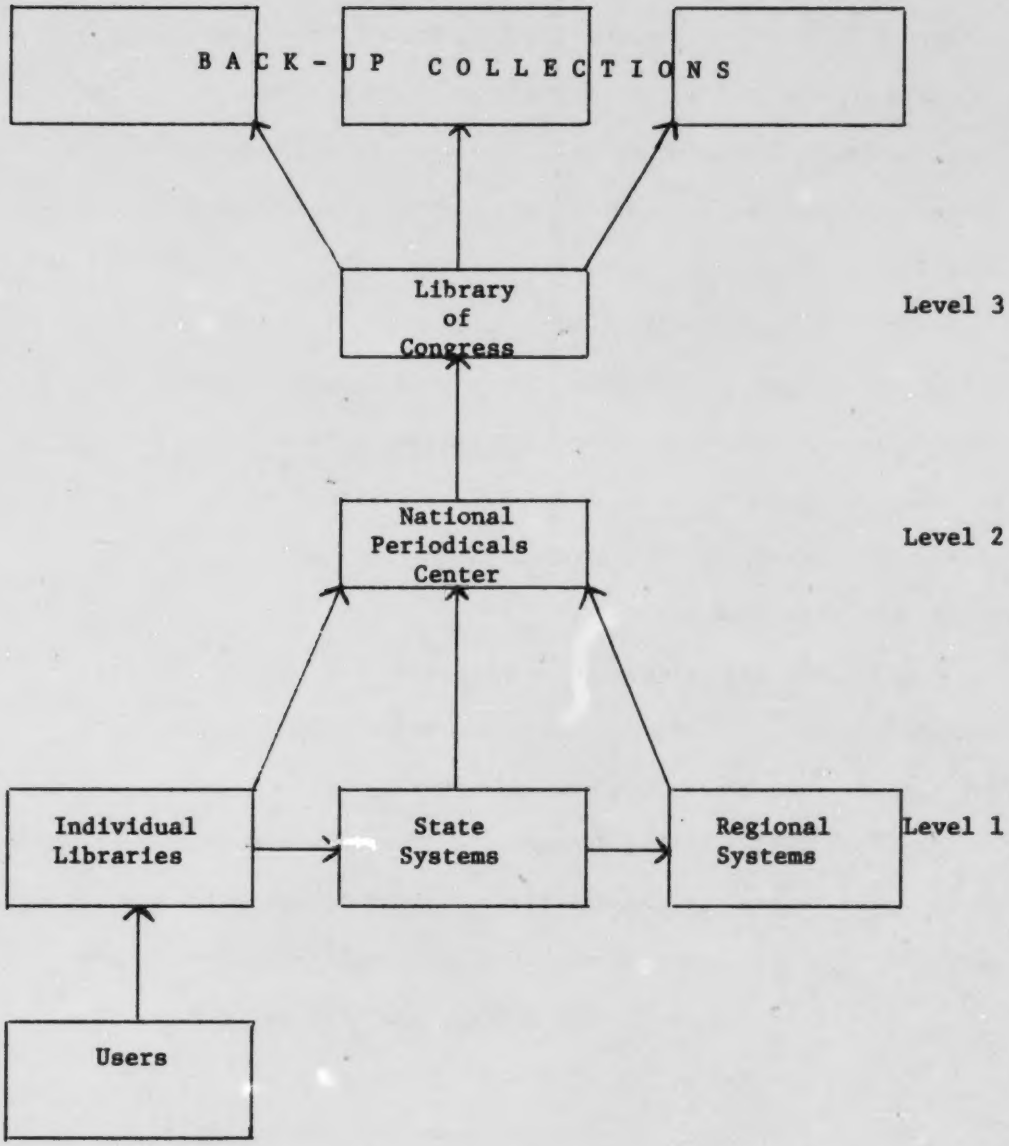

Figure 1. Flow of requests in proposed national periodicals system

Again, a solution might be the establishment of regional satellite systems.

A future change which could affect the entire system would involve changes in the publishing format. Publishers have informally commented that a national periodicals system, as envisioned by this Task Force, combined with economic and technological influences could change the whole approach to "packaging" articles. The journal or periodical, as now known, might be replaced by separates, reprints, publishing on demand, or other more suitable means for distribution. While such a drastic shift is not likely in the next few years, the system must be designed with enough flexibility to handle these kinds of changes.

Another likely change in the future may result from the development of regional bibliographic centers which maintain files of regional locations and holdings of serial titles. The anticipated growth towards a truly national bibliographic system with a well-developed regional level operation should shift more of the lending back to the local, state and regional levels. One of the better examples of the influence of a good union list is that of the Minnesota Union List of Serials. It has played a key role in the success of MINITEX. As similar files are developed on a regional basis, a higher percent of interlibrary loans should be filled within the regions.

Of course, any future changes will be influenced by the state of the economy. Should the economy turn down sharply, greater pressure would likely develop to assist libraries through

some means of government subsidies. A more centralized system would have an advantage under such conditions.

Communications

At the outset of systems development the primary means of communication will be mail and teletype. Incoming requests at the National Center will arrive via mail and teletype and outgoing materials will be sent, for the most part, by mail. Unfilled requests will be transmitted from the Center to the Library of Congress by teletype or a computer link. Again, LC may forward the request on to another back-up library by teletype or, in some cases, by computer link.

It is expected that, in time, the communication traffic between the Center and LC will shift towards computerized transmission. The message traffic from library systems/libraries to the Center is expected to shift towards computer links at a slower rate. The long range development of the interlibrary loan communications network may well be along the lines suggested by the SILC study conducted for ARL by Hayes. 13/

Delivery

One of the most difficult problems facing the National Periodicals Program is the dependence upon the U. S. Postal Service for delivery of the actual requested materials. At the moment there doesn't seem to be a good alternative to the mail system.

13/ Hayes, Robert M., A Study of a System for Interlibrary Communication (SILC), Washington, D. C.: Association of Research Libraries, February 1974.

Electronic transmission of extensive data is still too expensive except for urgent needs, although in future years, the electronic alternative is expected to become more viable.

The United Parcel Service might provide quicker delivery of items from the Center to specific drop-off points or to agencies making enough requests to justify batching the outgoing items. UPS is too expensive for a single article that averages less than 10 pages. A few states have experimented with privately chartered truck delivery systems. Such an approach with a central drop-off point for materials from the National Center might prove effective in some cases.

Bibliographic Tools

The single most important bibliographic tool for a national periodicals system will be the future version of the CONSER file. CONSER II, as envisioned by LC, should allow for incorporation of more detailed location information and of holdings records. It will probably be a number of years before the files contain detailed holdings records necessary for optimal interlibrary loan.

An important question in the system design of a national periodicals system concerns the point of entry to the CONSER II file. Should the National Center query the file directly and route the unfilled requests accordingly or should the requests be transmitted to LC which then searches the file and sends the requests on to the proper locations? Procedures will have to be developed based on the early operational experience of the periodicals system.

Protocols and Pricing of Service

Protocols refer to the access routes available in the National Periodicals System. The Task Force agreed that, initially, access to the National Center and to back-up libraries would be through libraries. Requests directly from individuals would not be accepted by these centers. Of key concern are the access routes between the three levels in the proposed system. Actually, the problem area has to do with the traffic between the first two levels, the local, state,and regional systems and the National Center. It is anticipated that the majority of requests reaching the back-up libraries at the third level will come directly from the National Center through the Library of Congress.

The real question concerns the restrictions that should be placed on the access routes to the National Center. Why any restrictions? Two answers are generally given:

1. To make the greatest use of local resources.
2. To insure the continuation of local collection development.

Would the availability of periodicals materials from a National Center without any charges to borrowing libraries detract from the accomplishment of these two desirable objectives? What would be the effect if fees were charged by the National Center?

Some argue that the charging of fees for services by the National Periodicals Center would encourage local use and collection development. In most present state interlibrary loan systems, the borrowing libraries do not pay a fee for an item obtained through the system. It is argued that libraries would

continue to try the free service first before going to the National Center for a fee.

Pricing is only one of several alternative techniques which could tend to promote the routing of requests through existing local, state and regional networks. Another approach could be to establish performance standards that would have to be met prior to the entrance into the national level. The Regional Medical Library Program of the NLM has performance standards built into the system at the different levels. For example, the National Periodicals System could require states and regional systems to fill, say, 80 percent of all interlibrary loan requests originating in their areas before requests would be acceptable by the National Center. Many states do not have systems that could meet such a standard and would have to make arrangements to join regional systems or form new systems in order to do so. Libraries in states that could not meet the standards might be permitted to send requests directly to the Center, but at a higher fee than the fee charged libraries in states meeting the standard. A major difficulty with this kind of policy is the necessary monitoring to enforce the standard. Perhaps state systems would be asked to file annual reports showing their performance in meeting interlibrary loan demand.

Other standards could be adopted as criteria for allowing states to use the Center without fee. To encourage maximum state funding of library systems, the National Center could require, for example, that a library expenditure per capita standard be met.

Eligibility factors could be imposed on users and materials requested. However, the Task Force does not believe that restrictions should be placed on requests as a function of the user. The system must serve all users. Nonetheless, certain periodical titles may be excluded from the system, e.g., very popular news magazines or other defined "non-research" materials. Yet another restriction could be the exclusion of requests for materials less than 12 months old.

Regardless of the restrictions adopted, it is assumed that libraries with strong collection strengths in periodicals would have direct access to the National Center. Requests from large research libraries and highly specialized collections in the area of specialty should be routed directly to the Center. A large research library could be defined in terms of the number of its current periodical subscriptions.

The whole point of this discussion on restrictions is to suggest various means that could be imposed to ensure that the Level 1 components meet their responsibilities. Initially, the system should have as few restrictions as possible. If experience in the first few years indicates that restrictions need to be incorporated, then it may be necessary and appropriate. It is not possible to reasonably estimate the impact of the proposed system upon existing and planned state and regional systems. The experience of the RMLP, which today hardly resembles the initial system, shows the difficulty in planning a major interlibrary loan system. Any system has to be flexible, and future change should be expected and accommodated.

As will be discussed in another section under implementation, the performance of the national system must be systematically monitored and evaluated each year. It is planned that between the third and fifth year a major evaluation of the total system should take place. Inequities may appear at that time that will necessitate particular modifications.

In summary, the following alternative fee structures appear most reasonable for consideration in the early years of the National Periodicals Center's operation:

1. A single fee charged for every request to the National Center.
2. A two-tier fee system with a low fee for loan requests "cleared" through existing state and regional systems and a higher fee for requests direct from libraries in states with no formally organized interlibrary loan system.
3. A single fee for those loan requests not following specified channels of access.
4. No fees with all expenses of the Center paid from government subsidies.

The specification of precise protocols and fees cannot be set until more details are known about the exact service to be provided by the National Center during the start-up phase. Prior to implementation, the Task Force will work with the Center manager to establish experimental protocols and fees to be tested and evaluated in the early years.

CHAPTER VI

NATIONAL PERIODICALS CENTER

The need for a comprehensive collection of periodicals dedicated to loan or photocopy was discussed earlier. Local, state and regional development is very uneven with few organized and funded systems providing adequate service, and, on the whole, adequate access to the Nation's periodical literature is difficult and uneven. Large academic research libraries, which in the past served as back-up resources to periodicals access, are now faced with reduced ability to maintain their distinguished collections. At the same time, the demand for periodical services continues to grow, both from the scholarly and research community and from citizens in general.

The Task Force believes the creation of the National Periodicals Center is urgently needed. The Center is the key element in the proposed National Periodicals Program and should receive immediate attention for funding and development. A target date of late 1978 or early 1979 has been set for starting the lending service at the Center.

Collection

The collection development strategy of the Center should aim at a set of periodical titles sufficient to satisfy 90-95 percent of the requests received. Attainment of this goal will require a

comprehensive collection of currently-published and deceased periodical titles. It is expected that the Center will have to obtain at least as many current titles as received by the British Library Lending Division (BLLD)--currently 47,500 titles. The Center will attempt to be comprehensive in little-used and moderately-used, as well as heavily-used titles, in terms of the definitions given earlier.

Currently-published titles, with complete back files, should satisfy about 75 percent of the requests received annually. The remaining 25 percent of demand on the Center will require deceased title holdings. The selection of the appropriate deceases titles to satisfy this demand poses a real problem. The BLLD stocks about 75,000 deceased periodical titles. While most of these titles will receive little use, they play an important role in a national system; little use of a title does not imply little value.

In the early years, a single comprehensive center would not be able to fill a high percentage of loan requests without back files of current titles. This can be seen from Table 1 which shows the estimated demand for titles as a function of age and use class. These estimates indicate that a center with one year of back issues for 45,000 current titles could expect to meet about 20 percent of the interlibrary loan requests for current titles. In constrast, a center with one year of back issues of the 35,000 little-used titles could fill only about 2 percent of the requests for currently

published titles. The primary purpose of Table 1 is to point out the importance of back files for currently-published titles, although the actual estimates are somewhat questionable.

Table 1. Estimated cumulative percent of demand for currently-published periodical titles as a function of use class and years of back issues.

Back Issues (Yrs.)	Total Use	2,000 Heavily-Used Titles	8,000 Moderately-Used Titles	35,000 Little-Used Titles
1	20	10	8	2
2	30	15	12	3
3	40	20	16	4
4	45	22.5	18	4.5
5	50	25	20	5
10	60	30	24	6
15	75	37.5	30	7.5
20	80	40	32	8
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
(X)	99.9%	50%	40%	10%

Distribution of use as a function of the age of the issue was derived from results of three studies that included interlibrary

loan requests for deceased titles as well as currently-published titles. 14/

The current study on photocopy, sponsored by NCLIS, the National Science Foundation, and the National Commission on New Technological Uses of Copyrighted Works (CONTU), and conducted by King Research, Inc., will provide data on the actual titles being requested through interlibrary loan in the U.S. Data will be available on titles loaned and borrowed by academic, public, special and federal libraries during 1976. This data will be useful in specifying the individual titles for an acquisitions program at the National Periodicals Center.

Three organizations were discussed as possible sources for initial collection building of the National Center--the Center for Research Libraries (CRL), the Universal Serials and Book Exchange (USBE), and Chemical Abstracts Service (CAS). The CRL subscribes to about 14,000 current titles, most of which are in the little-used class as defined above (see page 35). Another 22,000 periodical titles are owned by CRL. The USBE has in its collection some 3.9 million individual periodical issues spread over 35,000 titles. About 65 percent of the titles are U.S. This collection includes some issues of the 2,000 most-used titles as well as issues of lesser-used titles. It was suggested that some arrangement might be possible with Chemical Abstracts Service

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14/ Combined results of the three studies are summarized in: Palmour, Vernon E., Bellassai, Marcia C., and Gray, Lucy M., Access to Periodical Resources: A National Plan, Washington, D.C.: Association of Research Libraries, 1974, p. 109.

and other members of the National Federation of Abstracting and Indexing Services to make use of their rather extensive back files of journals. CAS now maintains 12-14 thousand titles, with as many as 15 years of back files for some titles.

Assuming it were possible to create an initial collection for the National Center from resources of CRL, USBE, and CAS, the resulting collection might include the following:

1. 1,500 most-used current titles with an average of five years back issues (CAS titles supplemented by USBE).
2. 5,000 moderately-used current titles with an average of five years back issues (CAS and USBE).
3. 20,000 little-used current titles with an average of five years back issues (CRL, CAS, and USBE).
4. 20,000 deceased titles with an average of ten years back issues (CRL, CAS, and USBE).

If such a collection were available for the first year of operation, it is estimated (roughly) that the Center could fill 35-45 percent of the total demand that might be placed upon it, or double the fill rate for one year's back files of 45,000 titles (see Table 1). A more rapid build up of back files could be undertaken in the early years to increase the overall fill rate. Donations from existing library collections would no doubt be available. Such an operation would have to be carried out cautiously so as not to interfere with lending services of the National Periodicals Center by taking away staff from their primary responsibilities.

Demand

The estimation, or forecasting, of demand expected by the National Periodicals Center is at best mere speculation. First of all, actual demand will depend upon the configuration of the collection at the Center, the quickness of service, and the real or perceived cost to the requesting libraries. Secondly, actual demand also depends on outside factors such as the general economic situation, and more specifically, on the financial pressures on libraries and on producers of periodical materials.

Perhaps the best forecast that can be made is one based on the possible number of loan requests for periodicals coming to the Center under two critical assumptions as follows:

1. Future growth of interlibrary loan will continue at about the same rate as the past, estimated at 10-20 percent compounded annually. Such growth is not likely to be sustained for more than about 15-20 years.
2. The Center will acquire all the titles, both currently-published and deceased, necessary to meet 90-95 percent of all loan requests received from Level 1.

Under these two assumptions, the estimated demand represents potential demand for a fully-established Center.

In the earlier ARL study, it was estimated that by 1978 the potential demand at a national center would be about 800,000 annual requests. 15/ This figure was developed by inspection of

15/ Ibid., pp. 104-111.

existing periodical demand upon academic libraries and speculating on how many requests would be likely to shift to a national center. Many believe that if this country had an effective periodicals system, demand would be very high, particularly from the industrial special libraries.

But initially the Center will have neither extensive back files nor a large number of available current and deceased titles. For example, an initial collection based on resources from CRL, USBE, and CAS was estimated above to have the capability of satisfying roughly 40 percent of the potential demand in 1978. The estimated number of actual satisfied requests would be 320,000 (800,000 x .40). For purposes of planning, the estimated number of filled requests for the first five years of operation is given in Table 2. Figures in Table 2 were computed on the assumption of a 25 percent annual growth rate of the requests filled.

Table 2. Estimated number of filled requests for the National Periodicals Center.

Year	Estimated Number of Filled Requests
1978	300,000
1979	375,000
1980	469,000
1981	586,000
1982	732,000

It may be necessary in the first few years of operation to make available a list of the holdings of the National Center and

accept only requests for those titles. The remaining requests would continue to be handled on the present ad hoc basis for interlibrary loans. Due to the limited collection of the National Center, the majority of potential loan requests, if processed through the system, would have to be filled by the back-up libraries. In the above example, the Center would fill about 300,000 of the potential 800,000 requests in 1978. The forwarding of the remaining 500,000 requests to LC and other back-up libraries would not be reasonable. Therefore, it seems advisable in the early years of operation for the Center to accept only requests for titles owned.

Form of Materials

The Task Force recognizes that the users' concern is with quick access to specific articles in journals. Long term planning for the National Periodicals Center must consider organization, storage and retrieval on the basis of the article. The design must insure flexibility to take advantage of technology as suggested in the following:

Initial Operation	-	Collection format primarily hard copy.
Short Term (5 years)	-	Greater use of microforms and initial shift to machine readable form of collection format.
Long Term (10 years)	-	Shift to machine readable form, separates, reprints, and other form

The effectiveness of microform as a means of storage should be evaluated in the early phases of collection development. At the time of the 1974 ARL study, it was concluded that a completely automated system of storage, retrieval, and reproduction of journal articles based on a microfiche collection was not feasible. 16/ No fully automated system combining computer search with automatic retrieval of microfiche was currently available or likely to be in the near future. Cost of producing microfiche appeared to be the major constraint to the practicality of such a system.

Today a greater number of periodical titles are available in microform. The usual complaints of users against microforms would not be a factor for the Center where the materials would be retained for copying purposes only. Even in the early years, certain titles could be purchased in microform. The immediate use of microform appears more reasonable in the case of a smaller number of heavily-used titles. Cost savings and efficiency of operation should be the main determinant of the degree to which microforms are used in the Center.

The use of evolving technology such as that offered via videodisc storage and retrieval must also be incorporated into planning.

Impact on Publishers

Publishers of periodical materials have expressed concern over the expected loss of subscriptions with the development

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16/ Ibid. pp. 88-90.

of a national periodicals system. Some evidence in Minnesota seems to indicate that the availability of periodicals from the MINITEX network has not resulted in a significant reduction of total subscriptions. Although the total numbers of subscriptions of MINITEX members do not appear to have changed drastically, some individual libraries have cancelled some titles in order to purchase others.

Libraries, for the most part, are not likely to start dropping subscriptions on a wholesale basis because of the establishment of the National Periodicals Center. Reallocation of subscriptions among titles is expected, though the impact on individual titles is not predictable.

The impact of the new copyright law, effective January 1, 1978, on the National Center is unclear at this time. Should the law be interpreted in light of the suggested CONTU guidelines, the responsibility rests on the individual borrowing libraries to account for their borrowing activities in accordance with the guidelines. This would seem to imply that a library would have to account for its combined borrowing activities from both the National Center and from other sources. The guidelines are expressed in terms of borrowing on a title by title basis. 17/

17/ Conference Report S-22. General Revision of the Copyright Law, Title 17, U. S. Code. House Report 94-1733, 29 Sept. 1976. The new U. S. Copyright Law - PL 94-553 (Stat. 2451) - was signed 19 October 1976 and becomes effective on 1 January 1978.

It would only be possible for the Center to do the accounting for libraries using the Center on a title by title basis.

King Research, Inc., in their photocopy study for the NCLIS, NSF, and CONTU, will investigate alternatives for royalties payment mechanisms. The results and recommendations of this study are expected to provide direction for the Center on the copyright issue.

CHAPTER VII

GOVERNANCE AND ORGANIZATION

The purpose of this section is to discuss the considerations of governance of the National Periodicals Program and for the organization and management of the comprehensive National Periodicals Center. It is important to realize that this Task Force is addressing only one part of what is envisioned in the future as a national library and information service network. The NCLIS program document and an earlier study address the development of such a national library network. 18/ 19/ The conceptual design recommended in the Westat study included a:

- National Bibliographic System
- National Resources System
- National Communication System

The periodicals system, as discussed in this report, would be part of the National Resources System as proposed in the Westat design. The NCLIS and LC are currently investigating other aspects of the national network.

18/ National Commission on Libraries and Information Science, Toward a National Program for Library and Information Services: Goals for Action, Washington, D. C., 1975.

19/ Palmour, Vernon E., Bellassai, Marcia C., and Roderer, Nancy K., Resources and Bibliographic Support for a Nationwide Library Program, Washington, D. C.: National Commission on Libraries and Information Science, 1974.

The managerial versus the actual operational functions of the National Periodicals Program must be distinguished in the discussion of governance. While it is appropriate to speak of the management and operation of the National Periodicals Center, the governance of the individual components at Levels 1 and 3 of the proposed periodicals system from the national level is not appropriate. Coordination is a better term than management when speaking of the overall system, the National Periodicals Program.

Coordination of the National Periodicals Program

After consideration of the alternatives suggested for the overall coordination of the National Periodicals Program, the Task Force determined that the NCLIS should be designated as responsible for overall coordination. Other possibilities included: another Federal agency, perhaps a new agency; the Library of Congress; and a new not-for-profit organization. The NCLIS, with its existing role in the national planning of library and information services, seemed to be the natural candidate.

The NCLIS would be assisted in its role as national coordinator by an advisory group appointed to represent and provide inputs from the affected communities--users, libraries, library systems, publishers, secondary services, and others. This advisory body, the National Periodicals Program Advisory Board, would play a key role in establishing national policy for the improvement of access to the periodical literature. The Advisory Board would advise the NCLIS on policies such as:

1. Overall coordination of system.

2. Protocols and channels for routing requests.

3. Performance standards for each level in the system.

4. Fees for services and products.

It is recommended that the present NCLIS Task Force on a National Periodicals System monitor developments as they occur, until such time as the Advisory Board is established. Due to the Task Force's experience and familiarity with the proposed program, they could be expected to participate in planning the early stages of development and implementation more knowledgeably than a totally new advisory body.

As other developments of the national library and information service network proceed, the responsibilities and the makeup of the proposed future Advisory Board might be expanded to include responsibility for the coordination of the national program. The existence and functioning of a policy board at the national level is sorely needed to coordinate the present fragmented approach to national library and information planning. 20/

Management of the National Periodicals Center

Several alternatives for the management of the National Periodicals Center were considered as follows:

1. A newly established not-for-profit corporation.

20/ Domestic Council Committee on the Right of Privacy, National Information Policy, Washington, D. C.: National Commission on Libraries and Information Science, 1976.

2. An existing non-Federal organization.

3. An existing Federal agency.

4. A new Federal or quasi-governmental organization.

The last alternative was viewed as not practical. Most discussions presented the advantages and disadvantages of a governmental unit versus a non-government unit. The main advantages given for a non-government association were the perceived greater sensitivity to the ultimate users and lack of entanglement in Federal government. Primary advantages for an existing Federal agency were related to the funding of the system and the current involvement of the Library of Congress in the development of the bibliographic apparatus necessary for a national library network.

With the increasing role and importance of the Library of Congress as a national library, the placement of the management of the National Periodicals Center at LC appeared to offer the best choice and was recommended by the Task Force. The transfer of the management of CONSER from the Council on Library Resources (CLR) to LC will enhance LC's role in the handling of periodicals. Other advantages include LC's experience, financing potential, and established position in the international library community.

It is further recommended that an Advisory Committee be established by LC to provide consultation on policy matters related to the Center. The National Periodicals Center Advisory Committee should include representatives from the major library organizations (ALA, ARL, and SLA), state and regional networks, scholarly users, citizens, publishers, other commercial information vendors,

NCLIS and CLR. Such a committee might consist of 15-20 rotating memberships.

The Advisory Committee would advise LC on a wide range of policy pertinent to the management of the National Periodicals Center, e.g.:

1. Services and products.
2. Performance standards for the Center.
3. Introduction of major new technology.
4. Center's impact on community--users, publishers, libraries, and others.

Operation of the National Periodicals Center

As manager of the National Periodicals Center, the Library of Congress could either operate the Center itself or contract with one or more other organizations for its operation. Two existing independent organizations, the Center for Research Libraries (CRL) and the Universal Serials and Book Exchange (USBE), were considered as possible bases upon which a National Center could be developed. LC could contract with either CRL or USBE for the development and operation of the Center.

Task Force discussions and later discussions with LC staff led to the recommendation that LC should operate as well as manage the Center. LC expressed its willingness and interest in accepting this dual responsibility. A small office staff would be established by LC to prepare for the establishment of the National Periodicals Center. Early decisions need to be reached on such needs identified to date as the need to:

1. Develop and promulgate objectives, policies, standards and guidelines for the management and operation of the National Periodicals Center.
2. Identify and establish channels of communication and policies necessary to coordinate activities with the other two levels of the system.
3. Review and develop requirements for periodic reporting of management data essential to evaluation and improvement of the system.
4. Establish and coordinate education and training programs to promote more effective use of the periodical literature.
5. Establish arrangements for possible use of the periodical collections of CRL, USBE and other institutions.
6. Monitor and initiate applications of appropriate new technology.
7. Develop and monitor role of LC as a back-up library to National Center.
8. Establish arrangements with other back-up libraries as referral centers in third level of system.
9. Establish arrangements with other international interlibrary loan centers for loan of materials.
10. Serve as clearinghouse for problems common to all types of libraries in the handling of periodicals.

CHAPTER VIII

FINANCING THE PROGRAM

Costs

Before discussing possible sources of income, it is useful to estimate the costs of developing and operating the National Periodicals System. The basic cost components are:

1. Construction and operational expenses for the National Periodicals Center.
2. Expenses for operation of Level 3 back-up system.
3. Expenses for Advisory Board to NCLIS.
4. Expenses for Advisory Committee to LC.

These cost elements do not include any costs incurred at the local, state and regional level. Also excluded are CONSER development costs.

Cost estimates will be derived for the individual components except item 2. Expenses for back-up service at Level 3 will be dependent upon policies that have yet to be established regarding routing of requests and possible payments to back-up libraries. Cost figures for the other components will be estimated for a six-year period--one year of start up (1977) and the first five years of operation (1978-1982). Needless to say, the estimates are at best rough.

Advisory Board and Advisory Committee expenses will consist primarily of costs for meetings. If it is assumed that each group contains 15 members, and that two meetings are held each year, and further assumed that each meeting covers two days and that the

average air fare per member is $200, then the estimated cost for each meeting would be approximately $5,000 ($3,000 air fare and $2,000 hotel, meals, and local travel). Consequently, the first year (1977) expenses for the Advisory Board and Advisory Committee would be about $10,000 each.

The estimation of annual development and operational costs for the National Periodicals Center requires many assumptions, and the projected future costs are almost certain to be in considerable error. Accepting these limitations, estimated costs will be developed for the following elements:

1. Collection
2. Facilities
3. Staff
4. Photocopy
5. Communications and Delivery
6. Other--supplies, travel, promotion and training materials and miscellaneous expenses

Collection Cost - For planning purposes, 45,000 worthwhile titles are assumed available for current subscriptions in 1977 with a four percent annual growth rate in the number of titles. 21/

21/ Wootton, C. B., "The Growth of the Literature and its Implications for Library Storage, 2. Serials," BLL Review, Vol. 4, No. 2, 1976. p. 41.

A resonable average subscription price appears to be about $35, and since 1969 the average annual price increase has been 13 percent for periodicals. 22/ and 23/ Making use of these figures, the estimated number of periodicals and the average subscription prices are shown in Table 3.

Table 3. Estimated number of worthwhile periodicals and average subscription prices

Year	Number of Titles	Average Price Per Title
1977	45,000	$ 35.00
1978	46,800	39.55
1979	48,672	44.69
1980	50,619	50.50
1981	52,644	57.07
1982	54,749	64.49

22/ Fry, Bernard M., and White, Herbert S., Economics and Interaction of the Publisher - Library Relationship in the Production and Use of Scholarly and Research Journals, Bloomington, Ind.: Graduate Library School, Indiana University, Nov. 1975.

23/ Clasquin, F. F., "Periodical Prices: a 1975 Update," Library Journal, Oct. 1, 1975, pp. 1775-77.

It is very doubtful that the Center could obtain subscriptions to all 45,000 titles during the first year, but for costing purposes this is assumed. The BLLD uses a special binding, called part-binding, for single issues of heavily-used materials. Part-binding costs run about 10 percent of the annual cost of the literature itself. The estimated total collection cost is given in Table 4.

Table 4. Estimated annual collection cost

Year	Estimated Total Collection Cost*
1977	$1,732,500
1978	2,036,000
1979	2,392,700
1980	2,811,900
1981	3,304,800
1982	3,883,800

*Includes subscriptions plus 10 percent for part-binding.

Figures in Table 4 do not include staff cost for annual maintenance of the collection; these costs are included under staff. The other missing costs are those for back files of the current titles, and for deceased titles. It is anticipated that these files would be obtained primarily through cooperative agreements and donations. Obviously, there will be some costs associated with these acquisitions, but how much is unknown.

Facilities Cost - Building costs will depend on several factors--location, type of structure, size, and internal improvements. The availability of suitable existing facilities should be

pursued before considering the construction of a new building. A newly-constructed building, specifically designed for the National Periodicals Center, should be capable of storing roughly 4 million individual periodical issues at the end of ten years. Storage space requirments would depend on the mix of hard copy issues and issues stored in microform, videodisc, or other formats. For rough costing purposes, the following space requirements are assumed:

150,000	square feet for storage
50,000	square feet for working space
200,000	square feet total

Using a building cost of $25 per square foot and land cost of $2.50 per square foot, the estimated cost for construction of a new facility would be $5.5 million. The costs of building improvements--shelving, office equipment, mechanical handling equipment and other miscellaneous items--are estimated at $1 million. The estimated cost for building and land, with improvements, is thus $6.5 million ($32.50 per square foot). It is worthwhile to point out that the building required for the National Periodicals Center would not be a library building, but a specialized warehouse. Before any building plans are formulated, the experience and knowledge of the BLLD should be tapped.

Annual maintenance, building services for cleaning, and utilities are estimated to cost $0.75 per square foot, or $150,000 in 1978 dollars. The annual maintenance cost would probably inflate annually at five percent.

Rental space would be required for the first three years prior to the availability of a new building. Such space should cost around $4.50 per square foot, including improvements and maintenance. Assuming 70,000 square feet is required, the estimated annual cost would be $315,000 for rental space. Use of rental space is assumed to commence in Jaunary 1978.

Estimated costs for facilities are shown in Table 5.

Table 5. Estimated facilities costs

Year	Rental Space	Building	Maintenance	Total
1978	$ 315,000			$315,000
1979	315,000			315,000
1980	315,000			315,000
1981		$650,000*	$174,000	824,000
1982		650,000	183,000	833,000

*Building cost amortized over a 10 year period

Staff Cost - The Staff cost is estimated using the following assumptions:

1. Staff is calculated as having a distribution of 15 percent professionals, 75 percent non-professionals and 10 percent part-time.
2. Average annual 1978 salaries:
   Professional - $22,500;
   Non-professional - $11,500;
   Part-time (FTE) - $ 8,000.

3. Combining staff mix and average annual salaries, the cost per full-time equivalent would be $12,800 in 1978 with an annual inflation rate of five percent.

4. Since staff is a function of level of requests processed, one FTE would be required for every 5,000 requests satisfied.

In an earlier chapter, the number of filled requests were estimated for the first five years of operation for the National Periodicals Center (Table 2). Combining those estimates with the staff assumptions, based on experience of the BLLD and MINITEX, the estimated staff size and cost are shown in Table 6.

Table 6. Estimated staff size and cost

Year	Filled Requests	Staff Size	Staff Cost
1977*	-	6	$ 75,000
1978	300,000	60	768,000
1979	375,000	75	1,008,000
1980	469,000	94	1,327,000
1981	586,000	117	1,734,000
1982	732,000	146	2,271,000

* LC staff expenses for planning start-up.

Photocopy Cost - The photocopy costs have been estimated from planning factors used in the earlier ARL study 24/ and are given in Table 7.

Table 7. Estimated photocopy cost

Year	Photocopy Cost
1978	$ 84,000
1979	105,000
1980	131,000
1981	164,000
1982	205,000

Communication and Delivery - Again using planning factors from the earlier study 25/, estimated communications and delivery costs are given in Table 8.

Table 8. Estimated communication and delivery cost

Year	Communication and Delivery Cost
1978	$183,000
1979	232,000
1980	295,000
1981	375,000
1982	476,000

24/ Palmour, Vernon E., Bellassai, Marcia C., and Gray, Lucy M., Access to Periodical Resources: A National Plan, Washington, D. C.: Association of Research Libraries, 1974.

25/ Ibid.

Other Costs - Other costs have been assumed to amount to three percent of the total cost of collection, facilities, staff, photocopy and communication and delivery.

Estimated Total Annual Cost - The estimated total annual costs for the National Periodicals Center are shown in Table 9.

Table 9. Estimated total annual costs for the National Periodicals Center, in thousands of dollars

Year	Collection	Facilities	Staff	Photocopy	Communications & Delivery	Other	Total
1977	$1,732	-	75	-	-	54	1,861
1978	2,036	315	768	84	183	102	3,488
1979	2,393	315	1,008	105	232	122	4,175
1980	2,812	315	1,327	131	295	146	5,026
1981	3,305	824	1,734	164	375	192	6,594
1982	3,884	833	2,271	205	476	230	7,899

There are many shortcomings in the above estimates. Changes in costs due to new technology have not been included. Inflation rates are just best guesses, and, perhaps, the most troublesome estimates are the staff costs. The assumptions used do not allow for scale economies which should exist in such an operation. No additional costs have been estimated for LC's role as a major referral library at the third level and CONSER development and operations costs are not included. It is also anticipated that back-up resource libraries at Level 3 would be compensated for their services, although such costs were not included above.

Sources of Income

How should the National Periodicals System be financed? Suggested alternatives range from total Federal subsidy to total private financing.

Roughly speaking, an annual budget of $2 million will be needed in 1977, growing to around $8 million by 1982. Possible sources of income for meeting such a budget include:

1. Fees for service based on individual transactions
2. Membership fees
3. Grants from private foundations
4. Government subsidy
5. Combinations of the above

In considering transaction fees, it is of interest to inspect the estimated unit cost per filled request at the National Periodicals Center (Table 10).

Table 10. Estimated unit costs for filled requests at the National Periodicals Center

Year	Unit Cost
1978	$ 11.63
1979	11.13
1980	10.72
1981	11.25
1982	10.79

These costs are based on the estimated total annual costs of the Center (Table 9) divided by the estimated number of processed requests (Table 2). The unit costs are too high in the early

years to consider full cost recovery on the basis of fees alone. Although these unit costs appear high, the actual unit costs of the present interlibrary loan system probably exceed them. The present lending costs of $7 and more do not include facilities and collection costs.

Membership fees would be difficult to establish on an equitable basis. Membership could be based on states, regions, library systems or individual libraries. A number of shortcomings are evident with membership fees and only a few advantages are offered over transaction fees.

The operation of a national system could not operate on the basis of short term grants as a means of finance. Grants provide a good source for initial operational expenses and needed research and development projects, but are hardly suitable for continuing operational expenses. A new building might possibly be financed from grant sources.

It has been suggested that the Federal government should subsidize the full cost of a national periodicals system. There seems to be valid justification for some level of Federal subsidy. It is expected that the majority of loan requests handled and filled by the system will be part of the Nation's research and development activities. Research libraries, both academic and special, will probably make the greatest use of the system. Consequently, the benefits should accrue to the entire country since most R & D programs are not focused on local problems in the area where the projects are conducted. A cited advantage of the Library of Congress, as one agency of the Federal government, as

the manager of the Center, was its ability to incorporate the budget requirements of the system in its own existing budget.

If the Center was fully subsidized by the Federal government and the services offered free to libraries, the possible misuse of the system is more likely. Free services generally tend to be abused, e.g., the early experience of the National Library of Medicine with physicians requesting unreasonable numbers of free photocopies bears this out.

A more desirable approach is some combination of Federal subsidy grants and transaction fees. The reason for the high unit costs at the National Center is the expense of the little-used materials, which accounts for about 75 percent of the total materials acquired in these calculations. A private commercial organization could not offer cost-recoverable services based on these titles due to the limited volume of demand. Yet, this is one of the most important functions of the Center. The cost of subscriptions, and maintenance, of these little-used titles clearly requires subsidization.

One possible combination is the subsidization of the collection and facilities by the Federal government with the remaining costs recovered from transaction fees. Table 11 shows the pertinent figures.

Table 11. Estimated costs for recovery by subsidy and fees

Year	Costs for Collection and Facilities (Subsidized)	All Other Costs (Recovered From Fees)	Unit Cost for Fees
1978	$ 2,351,000	$ 1,137,000	$3.79
1979	2,708,000	1,467,000	3.91
1980	3,127,000	1,899,000	4.05
1981	4,129,000	2,465,000	4.21
1982	4,717,000	3,182,000	4.34

The unit costs to be recovered by fees are reasonable and each year a higher proportion of the total budget is being recovered through fees.

In an earlier chapter, the possibility of two fees were considered. A lower fee was suggested for libraries in states with developed library programs. If such a system was adopted, the two fees could be set such that their average would permit the cost recovery shown in Table 11.

It is recommended that the NCLIS Task Force work with the Library of Congress to decide upon an equitable means of financing the National Periodicals Center. A policy on fees will be considered for implementation at the time lending services begin.

CHAPTER IX

NEXT STEPS

If operation of the National Periodicals Program, as proposed in this report, is to commence in 1978 or 1979, plans must begin immediately. The following activities must take place in order to launch the Program:

1. Plan for the National Periodicals Program approved by the Commissioners of the National Commission on Libraries and Information Science.
2. Operational planning begun for the development of the National Periodicals Center. Several major decisions need to be made concerning the development and operation of the National Periodicals Center.
3. The proposed National Periodicals Program implemented.

The primary effort during the next months will be devoted to those activities that must precede the provision of services by the National Periodicals Center.

Operational Planning

Assuming the basic concept of the proposed National Periodicals Program is approved by the NCLIS Commissioners, the Library of Congress is prepared to move quickly with the planning and design steps for the National Periodicals Center. Given the recommendations of this report, LC should establish a small staff to draw

up details leading to services by late 1978 or early 1979. It is recommended that the NCLIS appoint a small subcommittee from the Task Force to coordinate closely with the LC staff during this planning period.

One of the first tasks in the next few months will be the preparation of a grant request by the NCLIS in cooperation with LC to secure funds for the planning, development, and operation of the Center. Funding will have to come from outside sources for at least the first three years. The Federal portion of the budget for operating the Center would be included in the LC budget request to Congress for fiscal year 1981. Based on the rough cost estimates prepared for this report, outside funding could amount to $10-15 million. The actual amount required depends upon the development strategy adopted in the technical design.

A technical design for the creation of the National Periodicals Center is needed to help resolve a number of problems including: location and facilities for the National Periodicals Center, collection development, communications, staffing needs, budget, protocols for routing of interlibrary loan requests, revenues to finance the Center, record keeping requirements, and early operational policies.

One important aspect of providing services in the early years is the availability of back files of titles for the collection. Several possible sources exist for obtaining back files of periodical titles. Gifts of back files may be available from organizations such as:

Heavily-used titles	-	Gifts from academic, public and special libraries, Chemical Abstracts Service and USBE.
Moderately-used titles	-	Same sources as heavily-used titles.
Little-used titles	-	Academic libraries, large public libraries, Center for Research Libraries and USBE.

It may be to the advantage of the National Center to contract the building of some part of the back files to a separate organization.

A primary initial source for back files of little-used titles is the Center for Research Libraries. If CRL's present collection of periodicals could be arranged for transfer to the National Periodicals Center, the large bulk of little-used titles could be available immediately. Such a decision on the part of CRL would mean a restructuring of its present services. Perhaps, in the long run, other of the CRL services should also be a part of the national system. Determination of means for incorporation of CRL into the national system is an important decision that requires early investigation.

A strategy is required for the selection of current subscriptions for the Center. There may be advantage to the library community of a policy which initially concentrates on the lesser-used titles. The disadvantage of such an approach is that it satisfies a smaller percent of demand, resulting in very high initial unit costs.

The technical design should include an investigation of the immediate and long term use of microform as the storage medium and the future use of electronic document transfer. Design of a new facility for the Center will require the resolution of these kinds of policy questions.

Implementation

Services at the National Periodicals Center are planned to begin in late 1978 or early 1979. A summary of suggested key events leading to this implementation are shown in Table 12. Once the services are commenced at the Center, planning for the implementation of Level 3 back-up services should begin.

Table 12. Milestones leading to implementation of the National Periodicals Center

Time Period - Months After NCLIS Approval	Activity
1	LC sets up internal planning group and coordinates planning with NCLIS
2	Prepare and submit grant request for funds for planning and technical design.
3	Begin technical design.
8	Complete technical design. LC appoints advisory group to consult with respect to policies and services of Center.
9	Prepare and submit grant request for implementation funds.
10	Make site and facility selection for Center. Resolve copyright/royalty issues.
12	Funds available to establish Center. Select titles and place subscriptions. Make plans for back files.
15	Secure space for Center. Start receiving new subscriptions and back files. Finalize policy on fees and agreements with access points.
18-20	Start service.

Monitoring Performance

The future direction of the National Periodicals System will be shaped to a large degree by the early experiences. A monitoring scheme will be necessary to record and analyze data and information for future management decisions. It seems appropriate to focus the monitoring of the system at the National Periodicals Center. In its position as a link between the local, state and regional systems and the back-up resources at Level 3, the Center should have available to it, for the monitoring and evaluation of the entire system, information on and the understanding of the nation's use and needs of periodicals.

To insure adequate evaluation and sensitivity to needs, a major evaluation by an outside team is recommended around the fifth year of operation. This should be a thorough investigation geared to possible changes in the operational patterns. Data requirements for this evaluation should be anticipated in the design of an internal management information system to be maintained at the Center.

Another requirement of the system will be to provide the bookkeeping necessary for copyright purposes. The necessary information for determination of royalties will be required.

Promotion

The success of the National Periodicals Center will depend on the awareness and understanding of librarians of its operation and function and the Center's ability to deliver fast effective service. A vigorous promotional and educational

program will be required. Watson, in his report, "Great Britain's National Lending Library," notes that in the early development of the NLL (now the BLLD), Urquhart (first director) and a few others urged "that it should be NLL's responsibility not just archivally to store a national collection of modern science, but actively to promote its use--to mount a well organized, vigorous, permanent educational campaign in the use of scientific literature. . ." 26/

26/ Watson, Peter G., Great Britain's National Lending Library, Los Angeles, Calif.: UCLA School of Library Sercice, 1970, p. 11.

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APPENDIX

TASK FORCE MEMBERS

Name and Institution	Representing
Andrew A. Aines Division of Science Information National Science Foundation	Former NCLIS Commission member, January - July, now serving as technical expert
Richard Boss, Librarian Princeton University Library	Large Research Libraries
Douglas W. Bryant, Director and University Librarian Harvard University Libraries	ARL/CRL Joint Committee on a National Periodicals Lending Library
Fred E. Croxton, Director Reader Services Department Library of Congress	Library of Congress
Melvin Day, Deputy Director National Library of Medicine	National Library of Medicine
Leslie W. Dunlap, Dean Library Administration The University of Iowa	Large Research Libraries
Richard Farley, Director National Agricultural Library	National Agricultural Library
Eugene Garfield, President Institute for Scientific Information	Institute for Scientific Information
Warren H. Haas Vice President and Librarian Columbia University Library	Center for Research Libraries
Arthur T. Hamlin, Director Temple University Library	Association of Research Libraries

TASK FORCE MEMBERS
(Continued)

John A. Humphry State Librarian New York Educational Department	Statewide Library Networks
Stephen A. McCarthy, Consultant Council on Library Resources	Council on Library Resources
Robert R. McClarren, Director North Suburban Library System	Public Library Systems
Joseph W. Price, Chief Serials Records Division Library of Congress	Library of Congress
Russell Shank, Director Smithsonian Institution Library	Universal Serials and Book Exchange (USBE)
David C. Weber, Director Stanford University Librarian	Large Research Libraries
Alice Wilcox, Director MINITEX	State/Multi-state Library Networks
James Wood, Director Bibliographic Support Division Chemical Abstracts Service	National Federation of Abstracting and Indexing Services

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Alphonse F. Trezza, Executive Director
National Commission on Libraries and
Information Science

Vernon E. Palmour, Director
Task Force

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